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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/661,971	09/11/2003	Michael Goldstein	Intel 10559-866001 / P173	8567

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EXAMINER

WYATT, KEVIN S

ART UNIT	PAPER NUMBER
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2878

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/17/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/661,971

Applicant(s)

GOLDSTEIN, MICHAEL

Examiner

Kevin Wyatt

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- ☐ Notice of Informal Patent Application
- ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1,3-10,12,15-17, 19 and 21-27 are rejected under 35 U.S.C. 102(b) as being anticipated by Lin (U.S. Patent No. 4,585,342).

Regarding claim 1, Lin shows in Fig. 1, an apparatus comprising: a wafer (28) adapted to on a wafer stage (8, i.e., x-y stepping table) of a lithography tool; a radiation detector (10,12,14,16,18,20,22,24, i.e., photosensitive detectors) attached to a surface of the wafer, the radiation detector to produce a signal corresponding to an amount of radiation detected from the lithography tool (col. 3, lines 6-14); and a processor (3, i.e., computer) coupled to the radiation detector, the processor to process the signal from the radiation detector (col. 3, lines 12-14 and 43-48).

Regarding claim 3, Lin discloses that the detector is adapted to detect a dose of radiation from the lithography tool (col. 2, lines 4-20).

Regarding claim 4, Lin discloses that the detector is to detect an intensity of radiation from the adapted lithography tool (col. 2, lines 4-20).

Regarding claim 5, Lin shows Fig. 2, that the detector comprises an array of detectors (col. 3, lines 43-45).

Regarding claim 6, Lin shows Fig. 1, comprises alignment marks (provided on projection mask (4)) adapted to align the wafer on the wafer stage of the lithography tool.

Regarding claim 7, Lin comprises an amplifier coupled to the radiation detector and the processor, the amplifier (amplifier stage would be provided within computer (3) prior to analyzing detector signal) to amplify the signal from the radiation detector and transfer the amplified signal to the processor.

Regarding claim 8, Lin further comprises a power source (11, i.e., detector power supply) coupled to the processor (3, i.e., computer).

Regarding claim 9, Lin shows in Fig. 1, a system comprising: a processor (3, i.e., computer); and a radiation detector (10,12,14,16,18,20,22,24, i.e., photosensitive detectors) adapted to communicate with the processor (3, i.e., computer), the radiation detector to fit on a wafer stage (8, i.e., x-y stepping table) of a lithography tool, the radiation detector to detect an amount of radiation from the lithography tool and transmit data corresponding to the amount of radiation to the processor (3, i.e., computer), the processor to compare the data corresponding to the amount of radiation to a setting of the lithography tool (col. 3, lines 12-14).

Regarding claim 10, Lin shows in Fig. 1, the processor (3, i.e., computer) is adapted to use the data corresponding to the amount of radiation to calibrate the lithography tool.

Regarding claim 12, Lin shows in Fig. 1, an apparatus comprising: a wafer (28) sized to fit on a wafer stage (8, i.e., x-y stepping table) of a lithography tool; a radiation

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detector attached to a surface of the wafer, the radiation detector (10,12,14,16,18,20,22,24, i.e., photosensitive detectors) to produce a signal corresponding amount of radiation from the lithography tool (col. 3, lines 6-14); a processor (3, i.e., computer) coupled to the radiation detector, the processor to process the and signal from the radiation detector (col. 3, lines 12-14 and 43-48); and a memory (col. lines 12-14 suggests that computer (3) has at least some limited memory in order to process (convert from analog signal to digital) data from each sensor) coupled to the processor, the memory to store data from the processor, the data corresponding to an amount of radiation from the lithography tool.

Regarding claim 15, Lin shows in Fig. 1, an apparatus comprising: a wafer (28) sized to fit on a wafer stage (8, i.e., x-y stepping table) of a lithography tool (col. 3, lines 6-14); a radiation detector (10,12,14,16,18,20,22,24, i.e., photosensitive detectors) fabricated on a surface of the wafer, the radiation detector to produce a signal corresponding to an amount of radiation from the lithography tool; a processor attached to the surface of the wafer, the processor coupled to the radiation detector, the processor to process the signal from the radiation detector and output the data the lithography tool.

Regarding claim 16, further comprising a memory to store data from the processor (col. lines 12-14 suggests that computer (3) has at least some limited memory in order to process (convert from analog signal to digital)).

Regarding claim 17, a method comprising: loading a wafer-shaped detector on a wafer stage of a first lithography tool (col. 4, lines 62-63, and col. 4, lines 1-7); detecting

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an amount of radiation from the first lithography tool (col. 3, lines 23-29); and transmitting a first signal (via conductors (13)) indicative of the amount of radiation detected by the detector.

Regarding claim 19, Lin further discloses aligning the wafer-shaped detector on the wafer stage (col. 3, lines 55-62).

Regarding claim 21, Lin further shows in Figs. 4-5 that said detecting the amount of radiation comprises measuring a dose of radiation.

Regarding claim 22, Lin further shows in Figs. 4-5 that said detecting the amount of radiation comprises measuring an intensity of radiation.

Regarding claim 23, Lin further discloses amplifying the first signal from the detector (amplifier stage would be provided within computer (3) prior to analyzing detector signal).

Regarding claim 24, Lin further discloses removing the wafer-shaped detector from the wafer stage (col. 4, lines 62-63, and col. 4, lines 1-7).

Regarding claim 25, Lin further discloses comparing the amount of radiation detected by the detector to a pre-determined reference value (col. 4, lines 1-20).

Regarding claim 26, Lin further discloses adjusting a setting of the lithography tool if the amount of radiation detected by the detector does not substantially match the pre-determined reference value (col. 4, lines 41-58).

Regarding claim 27, Lin discloses repeating said detecting an amount of radiation from the first lithography tool on the detector (28), and transmitting a second

signal (via conductors (13)) indicative of the amount of radiation from the first lithography tool detected by the detector (col. 4, lines 55-58).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2 and 11, 13-14, 18, 20 and 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin (U.S. Patent No. 4,585,342).

Regarding claims 2, 11, 14, and 18, Lin discloses the claimed invention as stated above. Lin does not disclose a sensor further comprising a transmitter coupled to the processor, the transmitter to wirelessly transmit a signal from the processor as recited in claim 2, a radiation detector is adapted to wirelessly transmit data to the processor as recited in claim 11, a transmitter coupled to the memory, the transmitter to wirelessly transmit data from the memory as recited in claim 14 or wirelessly transmitting the first signal indicative of the amount of radiation detected by the detector as recited in claim 18. However, wireless transmission of data to and from processors and other memory devices is common and well known in the art. It would have been obvious to one skilled in the art to provide a wireless transmitter to the device of Lin for the purpose of reducing hardware, equipment and set up costs.

Regarding claim 13, Lin discloses the claimed invention as stated above. Lin does not explicitly disclose an apparatus further comprising an output connector adapted to output data from the memory. However, providing output connections from memory devices is well known in the computer art. It would have been obvious to one skilled in the art to provide output connections from the memory of Lin for the purpose of providing a means for conveniently using other devices to download data from memory.

Regarding claim 28, Lin discloses the claimed invention as stated above. Lin further discloses loading the wafer-shaped detector on a wafer stage in a lithography tool; detecting an amount of radiation from the lithography tool; and transmitting a signal indicative of the amount of radiation detected by the detector. Lin does not explicitly disclose utilizing wafer-shaped detector in a second lithography tool. However, col. 3, lines 6-22 suggests that the wafer is designed specifically for portability which means that it may be used with more than one lithography apparatus to detect the radiation of a lithography tool. It would have be obvious to provide a wafer shaped detector to detect, transmit and record radiation from a second lithography tool for the purpose of reducing alignment and set-up time for setting up each lithographic apparatus.

Regarding claim 29, Lin discloses the claimed invention as stated above. Lin does not disclose comparing the amount of radiation detected by the detector in the first lithography tool to the amount of radiation detected by the detector in the second lithography tool. However, col. 3, lines 12-14 and Figs. 3-5 suggests that data obtained on a particular lithography tool would be portable and usable to any suitable processing (i.e., software) or storage media for analysis or comparisons. It would have been

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obvious to one skilled in the art to compare radiation between lithography tools for the purpose of determining the lithography tool for an apparatus outputting the desired amount of radiation.

5. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lin (U.S. Patent No. 4,585,342) in view of Mautz (Publication No. U.S. 2003/0074097 A1).

Regarding claim 20, Lin discloses the claimed invention as stated above. In addition, Lin shows in Fig. 4, converting a first signal corresponding to the amount of the radiation detected by the detector to a second signal (digitally processed by computer (3)). Lin does not disclose that the second signal is to be wirelessly transmitted. Mautz shows in Figs. 4-5 a method wherein a second signal (lithography data) is to be wirelessly transmitted (via transmitter (240)). It would have been obvious to one skilled in the art to provide a method of signal transmission such as the one disclosed in Mautz for the purpose of improving efficiency by reducing time required to record data.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Butler (U.S. Patent No. 4,000,502) discloses a solid state radiation detector and process.

Fujisawa (Publication No. U.S. 2004/0058256 A1) discloses a dose monitoring method and manufacturing method of semiconductor device.

Kitaguchi (U.S. Patent No. 5,321,269) discloses a neutron individual dose meter, neutron dose rate meter, neutron detector and its method of manufacture.

Ochiai (U.S. Patent No. 6,486,476 B1) discloses a semiconductor radiation detector and manufacture thereof.

Smith (Publication No. U.S. 2002/0102482 A1) discloses a reference wafer and process for manufacturing same.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Wyatt whose telephone number is (571)-272-5974. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps can be reached on (571)-272-2328. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

K.W.

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THANH X. LUU
PRIMARY EXAMINER